[57] **ABSTRACT**

The invention relates to a system for transmitting packet data in the air interface of a digital cellular system based on TDMA, Time Division Multiple Access. The mobile terminated logical channels comprise information channels designated for transmitting information and control channels, which can be a fast paging (FP) channel and an acknowledgement (A) channel. The mobile originated logical channels comprise information channels designated for transmitting information and a reservation (R) channel, whereon the mobile station requests the system to reserve a connection for transmitting packet data. According to the invention, for the TDMA frames there is allocated a variable number of time slots for packet transmission, taking into account the symmetricity/asymmetricity of the packet transmission, as well as the total packet transmission demand of the cell. For fast paging (FP), acknowledgement (A) and reservation (R), there can be employed any of the time slots in the frame allocated for packet transmission. It is advantageous that in each time slot, the subscriber's data is subjected to the same interleaving and forward error coding algorithm, so that the respective time slots of consecutive frames form independent logical sub-channels, which are then reserved for one subscriber according to the needs, and to which the subscriber's data is multiplexed at the beginning of the transmission, and wherefrom it is again demultiplexed after the transmission.